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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/646,949	08/21/2003	Andreas C. Pfahnl	1758-US	2973

7590 04/19/2006  
Legal Department  
Teradyne, Inc.  
321 Harrison Avenue  
Boston, MA 02118

EXAMINER

MCKINNON, TERRELL L

ART UNIT	PAPER NUMBER
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3753

DATE MAILED: 04/19/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.,

10/646,949

Applicant(s)

PFAHNL ET AL.

Examiner

Terrell L. Mckinnon

Art Unit

3753

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 06 February 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 8/21/2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_

### DETAILED ACTION

Receipt is acknowledged of applicant's amendment filed February 6, 2006.

Claims 1-19 are pending and an action on the merits is as follows.

Applicant's arguments with respect to claims 1-19 have been considered but are moot in view of the new grounds of rejection.

#### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Scaringe (U.S. 6,205,803) in view of Eninger et al. (U.S. 5,036,905).

Scaringe discloses a two-phase cooling unit thermal control method and apparatus comprising:

- an evaporator (cold plate) having a single-phase inlet for receiving a single-phase liquid coolant and a two-phase outlet for discharging a two-phase coolant (abstract and Figs. 7-13);
- a local condenser (1<sup>st</sup> condenser) disposed proximate the evaporator and having a two-phase inlet coupled to the

- evaporator outlet, the local condenser including a single-phase liquid coolant outlet;
- a pump (compressor) having an output coupled to the evaporator inlet, and an input coupled to the local condenser outlet;
  - a single-phase liquid coolant inlet line coupled to the evaporator inlet;
  - a single-phase liquid coolant outlet line coupled to the local condenser outlet;
  - at least one single-phase coolant path disposed in parallel with the evaporator and condenser for carrying out single-phase heat transfer (Figs. 7-13, discloses multiple embodiments of at least one single phase coolant path disposed parallel with the Evap. and Cond.); and
  - directing a portion of the single-phase coolant proximate a second electronic device on the electronic assembly to effect single phase cooling for the second electronic device.

Scaringe's invention discloses all of the claimed limitations from above except for showing and disclosing the means for exchanging heat comprises an evaporator having a single-phase inlet for receiving a single-phase liquid coolant, and a two-phase coolant outlet.

3. However, Eninger teaches the use of a two phase cooling system that discloses and shows exchanging heat comprising an evaporator (13) having a single-phase inlet

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for receiving a single-phase liquid coolant (15) and a two-phase coolant outlet (Fig. 1 and liquid, vapor mixture).

Given the teachings of Eninger, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the two phase cooling unit of Scaringe with exchanging heat comprises an evaporator having a single-phase inlet for receiving a single-phase liquid coolant, and a two-phase coolant outlet.

Doing so would provide a very efficient cooling unit for exchanging and transferring heat from heat generating electrical devices.

### ***Response to Arguments***

Applicant's arguments filed February 6, 2006 have been fully considered but they are not persuasive and moot in view of the non-final rejection as stated above.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Terrell L. Mckinnon whose telephone number is 571-272-4797. The examiner can normally be reached on Monday - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gene Mancene can be reached on 571-272-4930. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Terrell L McKinnon  
Primary Examiner  
Art Unit 3753  
April 17, 2006